What is claimed is:

1. A digital frequency synthesizer comprising:

a frequency source that provides a selected one of a plurality of frequency patterns based on a frequency selection input; and

a digital-to-analog converter that receives a delta-sigma modulated signal associated with the selected one of the plurality of frequency patterns and converts the delta-sigma modulated signal to a corresponding analog signal.

2. The synthesizer of claim 1, the frequency source further comprising memory that stores data for the plurality of frequency patterns, the memory providing the selected one of the plurality of frequency patterns in response to the frequency selection input.

3. The synthesizer of claim 2, the plurality of frequency patterns further comprising delta-sigma modulated patterns associated with the frequencies represented by the plurality of frequency patterns.

4. The synthesizer of claim 2, further comprising a frequency selector operative to select the selected one of the plurality of frequencies from the memory device for a desired frequency based on the selection input.

5. The synthesizer of claim 2, further comprising a switching system coupled to receive the selected one of the frequency patterns from the memory as an M-bit signal and to provide an N-bit signal, where $M>N\geq 1$, the delta-sigma modulated signal being associated with the N-bit signal.

6. The synthesizer of claim 1, further comprising a delta-sigma modulator coupled to provide the delta-sigma modulated signal to the digital-to-analog converter based on associated processing of the selected one of the frequency patterns.

7. The synthesizer of claim 1, further comprising a switching system coupled to receive the selected one of the frequency patterns as an M-bit signal and to provide an N-bit signal, where $M>N\geq 1$.

8. The synthesizer of claim 7, further comprising a delta-sigma modulator coupled to receive the N-bit signal, the delta-sigma modulator processing the N-bit signal to provide the delta-sigma modulated signal to the digital-to-analog converter.

9. The synthesizer of claim 1, the digital-to-analog converter providing the analog signal as a frequency hopping signal that hops between selected ones of the plurality of frequency patterns at a hop rate based on the selection input.

10. The synthesizer of claim 9, further comprising a filter coupled to mitigate noise in the analog signal provided by the digital-to-analog converter, at least some of the noise corresponding to quantization noise or noise that has been shifted to out-of-band frequencies to facilitate frequency hopping of the analog signal.

11. The synthesizer of claim 1, the digital-to-analog converter further comprising a one-bit digital-to-analog converter.

12. A communications system comprising the synthesizer of claim 1, the communications system further comprising a mixer coupled to receive a local oscillator signal at a carrier frequency based on the selection input, the local oscillator signal corresponding to a filtered representation of the analog signal provided by the digital-to-analog converter.

13. A communications system comprising the synthesizer of claim 1, the communications system further comprising:

a transmitter portion that includes the digital-to-analog converter, which is operative to convert a first delta sigma modulated signal associated with a first selected one of the plurality of frequency patterns to a corresponding analog signal;

a receiver portion that includes a digital-to-analog converter operative to convert a second delta sigma modulated signal associated with a second selected one of the plurality of frequency patterns to a corresponding analog signal; and

an oscillator that provides a clock signal for controlling at least part of the transmitter portion and at least part of the receiver portion.

14. A frequency hopping digital frequency synthesizer comprising:

a frequency source that provides a selected one of a plurality of frequency patterns based on a selection input that changes at a hop frequency;

a digital-to-analog converter that receives a delta-sigma modulated signal associated with the selected one of the plurality of frequency patterns and converts a delta-sigma modulated signal to a corresponding analog signal; and

a filter coupled to mitigate noise in the corresponding analog signal, at least some of the noise corresponding to quantization noise or noise that has been shifted to out-of-band frequencies.

15. The synthesizer of claim 14, digital-to-analog converter further comprising a one-bit digital-to-analog converter.

16. The synthesizer of claim 14, the frequency source further comprising a memory that stores data for the plurality of frequency patterns, the memory providing the selected one of the plurality of frequency patterns in response to the selection input.

17. The synthesizer of claim 14, further comprising a delta-sigma modulator coupled to process the selected one of the plurality of frequency patterns and to provide the delta-sigma modulated signal to the digital-to-analog converter.

18. The synthesizer of claim 17, the delta-sigma modulator comprising a plurality of delta-sigma modulator stages coupled to process different portions of the selected one of the plurality of frequency patterns in parallel.

19. A communications system comprising the synthesizer of claim 14, the communications system further comprising a mixer coupled to receive a local oscillator signal at a carrier frequency defined by the selection input, the local oscillator signal corresponding to a filtered version of the analog signal provided by the digital-to-analog converter.

20. A digital frequency synthesizer comprising:

memory that stores digital data for a set of frequency patterns, the memory providing a selected pattern of the set of frequency patterns based on a carrier selection signal associated with a desired frequency; and

a digital-to-analog converter that receives a delta-sigma modulated signal associated with the selected pattern provided by the memory and converts the delta-sigma modulated signal to a corresponding analog signal, such that noise in the analog signal is mitigated in a pass band for the desired frequency.

21. A digital frequency synthesizer comprising:

means for providing a digital representation of one of a plurality of frequency patterns based on a frequency selection signal that varies according to a hop rate, the plurality of frequency patterns representing at least two different respective frequencies;

means for converting a delta-sigma modulated signal to a corresponding analog signal, the delta-sigma modulated signal being associated with the digital representation of one of the plurality of frequency patterns provided by the means for providing.

22. The synthesizer of claim 21, the means for providing further comprising means for storing data for the plurality of frequency patterns and for providing the selected one of the plurality of frequency patterns based on the frequency selection signal.

23. The synthesizer of claim 21, further comprising means for delta-sigma modulating an input signal corresponding to the digital representation of the one of the plurality of frequency patterns to provide the delta-sigma modulated signal to the means for converting.

24. The synthesizer of claim 21, further comprising means for filtering the analog signal to provide a filtered signal having reduced noise content relative to the analog signal.

25. A communications system comprising the synthesizer of claim 24, the communications system further comprising means for mixing a local oscillator signal corresponding to the filtered signal with another signal.

26. A communications system comprising the synthesizer of claim 21, the communications system further comprising:

a transmitter portion that includes the means for converting, which operative to convert a first delta sigma modulated signal associated with a first selected one of the plurality of frequency patterns to a corresponding analog signal;

a receiver portion that includes another means for converting a second delta sigma modulated signal associated with a second selected one of the plurality of frequency patterns to a corresponding analog signal; and

means for providing an oscillator signal for controlling at least part of the transmitter portion and at least part of the receiver portion.

27. A method for synthesizing desired frequency signals, comprising:

selecting one of a plurality of frequencies;

providing a delta-sigma modulated signal associated with the selected one of the plurality of frequencies; and

converting the delta-sigma modulated signal to a corresponding analog signal.

28. The method of claim 27, the selection further comprising varying the selection of the one of the plurality of frequencies at a hop rate, such that the frequency of the analog signal changes according to the hop rate.

29. The method of claim 27, further comprising filtering the analog signal to provide a filtered signal in which noise associated with delta-sigma modulation is mitigated.

30. The method of claim 27, further comprising programming memory to store digital representations of a plurality of frequency patterns for the plurality of frequencies.